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AUTHOR Schlenk, George W.; Shrock, Sharon A.
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ABSTRACT

The major research question addressed by the "Exhibit Development Survey 1986" was whether major American museums were using the instructional development process to develop their exhibits. Approximately 24% of all major American museums representing a broad cross section of museum types responded to the survey. Their responses indicate that the development of exhibits has become the primary area of concern, with education as their second most important area of involvement, and the exhibits their most important educational activity. Further, the exhibit development process has undergone many recent changes. Fully one third of the respondents reported that they were using instructional development as a basis for the exhibit development process; 39% indicated that their institution included an instructional developer on their exhibit development team; and an additional 32% felt that their institution should use instructional developers for this purpose. Still others were using individual instructional development techniques as part of their exhibit development process. This report includes background information, the research questions, a discussion of the significance of the problem, an abbreviated literature review, and a discussion of the major findings. Conclusions are reported for 10 main areas of concern: (1) demographics of respondents; (2) institutional priorities; (3) development of exhibits; (4) consideration given visitors/audience; (5) use of instructional objectives; (6) integral and peripheral educational aspects of exhibits; (7) evaluation procedures; (8) coordinating exhibit development; (9) the current exhibit development process; and (10) instructional developers in the exhibit development process. Additional respondent comments are also discussed, and a number of recommendations are presented for museum administrators. (7 references) (BBM)

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Authors:

George W. Schlenk
Sharon A. Shrock

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# The Use of Instructional Development Proceduresto Create Exhibits: A Survey of Major American Museums

George W. Schlenk
Sharon A. Shrock

Southern Illinois University
Carbondale, Illinois

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## Introduction and Problem Statement

### Purpose of the Study

The purpose of the study was to investigate whether major American museums are using Instructional Development procedures to develop their exhibits. It was hoped that an accurate picture of the exhibit development process at major American museums would also be produced.

### Background Information

Instructional development is the discipline which develops instructional systems, as a museum exhibit might be classified, through the use of a variety of systematic procedures. These procedures include: needs assessments, goal setting, written instructional objectives, trial runs, evaluation, and feedback utilization.

Two themes are clear from the literature of the museum field. These writers indicate that eduction is one of the museum's main aims and objectives. They also maintain that the presentation of exhibits is one of their primary areas of activity. Thus the general public would be justified in assuming that museum exhibits should be educational/instructional.

The question that arises for the researcher is whether museums are engaging in the necessary procedures to insure that their exhibits are instructional. If one compares what the instructional developer believes produces good instruction with what museum professionals are calling for to improve museums, there would be two very similar lists. The conclusion which might be drawn from this circumstance is that museum exhibits are not instructional, and further, that museum professionals recognize this situation. However, since there are also calls for better or more extensive exhibit evaluation, a more likely conclusion would be that museum professionals do not know if their exhibits are instructionally effective.

The calls by museum professionals for the use of many of the individual procedures employed by the instructional development process differ from the practice of instructional development in at least one very important way. The application of one or several of the various individual principles/procedures used in instructional development, is a piecemeal, symptomatic approach, as compared to the systematic approach of instructional development. In the past there have been calls for the use of instructional development to develop museum exhibits, most notably by Chandler G. Screven (1974). The purpose of this study was to learn if museums have followed his advice and adopted the use of instructional development to create exhibits.

Research Question

The major research question which the study sought to answer is: Are major American museums using the instructional development process to develop their exhibits? In addition to this question, the study sought to answer several secondary questions: What procedures are museums currently using to develop exhibits? What are the reasons that museums are/are not using instructional development to develop their exhibits? What has been the experience of those museums using instructional development? Do museums feel there is a need to reorganize their exhibit development processes? Would museums be open to the idea of an instructional developer/developers coordinating their exhibit development processes? What would be the reasons museum professionals might resist a change to using instructional development to develop museum exhibits?

Significance of the Problem

The museums of the United States, and indeed, the museums of the world are the storehouses of a vast collection of artifacts and information. It is these collections which document, illustrate, and even inspire much of what man knows about the earth and himself. There is much knowledge yet to be drawn from these sources, and much of what will need to be learned anew by future generations will depend on the maintenance of these collections. Thus it is imperative that these collections be preserved and utilized to their fullest by society.

Obviously, these collections have much that they can teach us. However, this cliched use of the word "teach" is really a misnomer. Museum collections can not teach us anything. What may be learned is what individuals or scholars endeavor to draw out of these objects through study and research. This process of research may entail years to divine the meaning of the artifacts which make up the collections and exhibits of our museums.

The general public, which museums endeavor to educate, does not have hours and hours of research time to study museum exhibits -- to draw out their meaning, to discover the exhibit's relevance to themselves, society, or the physical world. They should not have to rediscover that which scholars have already explored. That is not to say that the museum visitor has no responsibility to make an effort to learn or that they do not need certain prerequisite knowledge to fully appreciate the museum experience.

This does mean though, that museum professionals have a responsibility to present exhibits which are developed and designed in such a manner that everyone, from the casual visitor to the scholar doing research, can learn the insights and knowledge of museum professionals. Thus, the exhibits must be developed and presented in a systematic manner, to insure that they are instructionally sound. The principles and procedures of instructional development offer a proven systematic approach that would be ideal to develop and present exhibits.

The lineage of instructional development can be traced back to World War II, when the military was faced with the tremendous task of educating millions of people in the most efficient manner. To this end, the procedures of instructional development were first developed and introduced. Since that time, these procedures have been further researched and refined, and have continued to be used by the government and the military and are rapidly being adopted by American corporations -- all faced with the similar task of educating or training large numbers of people with diverse backgrounds to learn a large variety of skills, procedures, and basic knowledge.

In the past twenty-five years there has been a huge increase in museum attendance. This large increase and the museums' mandate to serve the general public, as well as professional scholars, would indicate that museums should utilize instructional development procedures to develop exhibits to insure that the exhibits are instructionally sound. Thus, it would seem very pertinent to question whether our museums are using instructional development to educate, that is, availing themselves of the most recent research in instructional methods. It would seem of interest

whether or not our publicly supported museums are using the most effective means to allow their general audiences, as well as scholars, to learn as much as possible from their exhibits.

Since a number of museum professionals are calling for the adoption and use of various individual procedures that make up instructional development, it would be reasonable to conclude that museums are not carrying out the amalgamation of these procedures -- instructional development -- if they are not practicing the individual procedures. Thus, if it is learned where museums stand in regard to instructional development's use/non-use, or what their attitudes are toward its adoption, it might be possible to advise them on what steps to take to begin to adopt instructional development for use in their exhibit development. In this way, museums might take advantage of the same educational technology, or instructional development, to accomplish their stated educational goals, that is being successfully utilized by the United States government, the military, and corporate America.

## Abbreviated Literature Review

Since the 1960s a number of museums have been aware of the need to interact and communicate with their constituency in a more overt manner to facilitate learning. Many museums tried a number of innovative programs -- neighborhood storefront museums, school programs and other outreach programs -- in addition to their exhibits. The Belmont Report (1969) lauded a number of these programs. However, some of these programs were cut back over the years due to funding problems. And while some of these exhibits and programs were successful, some were not. They frequently contained the same strengths and weaknesses as did the exhibits and programs they had offered "in house" all along.

Museums had come a long way since the days when glass cases were stuffed with objects with Latin names. Museum professionals were trying to communicate more than a Latin name -- they were trying to communicate to the visitors the importance and meaning of the objects displayed. However, there were some who wanted to limit this "interpretation" of museum collections to museum visitors. Cameron (1968) offered his view of a museum as a communication system in which museums should strictly limit their "translation" through media of the artifacts in exhibits. He believed that these artifacts comprised their own language and that visitors should learn this language.

During the 1970s, a number of people in the museum profession were struggling with how to correct or improve the weaknesses they saw in museum exhibits and educational programs -- but they had to contend with viewpoints such as that expressed by Cameron. They also had few places to turn to for help. In a number of instances they were successful, but these successes were somewhat localized -- there was no real means to learn from each other's successes and failures.

Shettel (1973) and Screven (1974), writing on instructional design and exhibits, both offered museums the systematic means to begin dealing with improving exhibits and educational programs. It was during this period that museums began looking to other fields for solutions to their problems. Miles (1982) recounts looking for these solutions and gradually finding them over a ten year period in fields like psychology, communication sciences, and educational technology. The museum literature at this time contained numerous references to museum professionals applying various techniques from the field of instructional technology and instructional design. They talked of learner/audience analysis, needs assessments, objectives, and formative evaluation. Griggs (1981) discussed formative evaluation at the British Museum (Natural History). However, other than Shettel (1973) and Screven (1974), few put all the parts together and saw them as a systems approach to museum exhibits and educational programs.

Miles (1982) synthesized all the various parts after looking for ten years. In creating a large exhibit for an entire exhibit hall at the British Museum (Natural History), Miles and his colleagues applied the various parts of instructional design in a systems approach. They published their experiences and advice in *The Design of Educational Exhibits*. In the preface, Miles concluded that "the failures of the past had not been so much failures of people, but failures in the information available to them." In 1984 the American Association of Museums (1984)published

*Museums for a New Century: A Report of the Commission of Museums for a New Century*. This work was a major examination of the museum field in the United States. It recommended that museums specifically improve the educational aspects of their exhibits and educational programs. It mentioned contributions of Screven and the application of instructional design. Further, it recommended that museums interact more with their constituencies.

From the date that Museums for a New Century (1984) was published, museums have expressed much commitment to facilitating learning and communicating with their constituencies. However, there are still a number of "failures" due, as Miles (1982) put it, to failures of information and not people. To cite a simple and recent example: a major museum's reinstallation of a permanent exhibit included labels at ankle level which were less than one fourth inch high and which were difficult to read even on one's knees. Next to the labels was a sign which apologized for the problem, which was "being evaluated". Such occurrences raise a variety of concerns when museums talk of using computers and interactive video in their exhibits and educational programs.

The traditional educational program and exhibits at museums were created by experts for experts. There was little attempt to communicate on the level of their constituency. There was frequent use of the outstanding or very rare example rather than the "model case" artifact which would teach much more about the concept. Labels were written in a meaningless fashion, for example, "chair, wood, stained" which are all obvious to all who viewed the chair. There was little attempt to explain why "the chair" had meaning.

## Major Findings, Conclusions, and Recommendations

### Major Findings

The objective of the "Exhibit Development Survey 1986" was to produce a description of the exhibit development process -- the methods museums use to develop their exhibits -- at major American museums. It was hoped that this would also reveal if these museums are using the instructional development process to develop exhibits, and if so, to what extent. Though the exhibit development process is an exceedingly complex one, the results of the survey yield a fairly concise picture of the means by which museums go about the process of developing exhibits.

The survey results indicated that the development of exhibits has become the primary area of concern for major American museums. The museums view education as their second most important area of involvement. Further, they view their exhibits as their most important educational activity. Thus, the exhibit development process, in which they concentrate much of their energies and resources, is their main avenue to educate to the general public.

This configuration of priorities produces a symbiotic relationship between exhibits and education: The museums' first priority is their most important means of attaining their second priority. These priorities must be questioned, however, when one examines other survey responses. For example, 24% of respondents said their institution does not consider the needs or preferences of their audience when developing exhibits. Seventy-four percent of responding institutions do not use a data bank of their audiences' characteristics when selecting exhibit topics. Fifty percent of responding institutions do not try to assess what their audiences learn from their exhibits. These figures would seem to indicate a lack of emphasis on the educational value of exhibits by a number of major museums.

However, it should be noted that many of the major museums extol to the importance of educationally effective exhibits. Indeed, the survey responses taken as a whole, plus respondents' additional comments, indicate that most major museums consider their exhibits to be a serious educational endeavor. Further, the exhibit development process is an area which has undergone many recent changes -- an area museum professionals take seriously and are eager to improve.

The survey also revealed that there has been a major shift towards using instructional development as the basis of the exhibit development process. Fully one third of major American museums indicated they are using instructional development to create exhibits. Thirty-nine percent

of respondents indicated their institution included an instructional developer on their exhibit development team, and another 32% felt their institution should utilize instructional developers for this purpose. Still other institutions are using individual instructional development techniques as part of their exhibit development process, but are not taking advantage of the benefits of the overall systematic process. It is unclear whether these institutions are aware of such benefits, or whether they do not know how to implement the instructional development process.

These statistics are not just remarkable because of the percentage of responding institutions utilizing instructional development, or advocating the use of instructional development, or advocating the use of instructional developers, but also because this development has largely been overlooked in the museum literature. Further, considering the primary role of exhibits in the museum profession, it is striking that there have been few studies of the overall exhibit development process, and in particular, the recent utilization of instructional development in this process.

Another implication, which the results of the survey raised, concerns the separation of the education and exhibit divisions in some museums. While specific survey questions did not address this point, a number of respondents' comments indicated this was the case at their institution. In several cases, their comments indicated that exhibits were produced by a "curatorial division", or the "exhibits division", and then the responsibility for using the exhibit in an educational manner became the responsibility of the education division. Further, a number of these respondents appeared not to know or care, if anyone learned anything from their exhibit. They suggested this was the responsibility of the education division -- or at least the education division staff should be the ones to ascertain this. However, it would seem to follow that if those persons developing an exhibit are not vitally interested in its educational effectiveness, then the importance of this aspect of the exhibit is diminished for those persons.

Of necessity, the scope of this survey was limited by the expansive nature of the exhibit development process. Each of the various procedures of the exhibit development process needs to be examined in greater depth, but the overall process must be kept in view at the same time. These areas of concern -- from selecting an exhibit topic to evaluation of the educational effectiveness of an exhibit -- are not isolated procedures; they are all part of the exhibit development process and should be examined in that light.

## Conclusions

The conclusions of the survey are reported in this section. For this present discussion, the content of the survey has been divided into ten main areas of concern, plus an additional section addressing respondent remarks to several open-ended questions.

### Demographics of Respondents and Responding Institutions.

The response to the survey was quite adequate with approximately 24% of all museums in the population of major American museums responding to the survey. Further, the responding institutions represent a broad cross-section of major museums with 32% being art museums, 18% history museums, 32% science museums, 5% natural history/ anthropology museums, 8% children's museums, and 5% general museums. The respondents, who actually filled-out the survey for their particular institution, fell into five categories: administrative for the institution -- 34%, curators -- 8%, educators -- 13%, administrative for exhibits division -- 8%, and staff members from the exhibit division -- 8%. Ninety-five percent of the responding institutions said they served an audience of the general population.

Institutional Priorities.

The responding museums ranked exhibits as their most important priority with education a close second. These two activities were ranked, by far, as these museums' most important priorities. Exhibits, among various museum activities, were also considered to be these institutions' most important form of educational activity. However, they believed that a somewhat greater number of their visitors came to their institutions for "recreational reasons," rather than for educational ones. This is further accentuated by the fact that the respondents also ranked "social reasons" as an additional important reason why visitors came to their museums.

Development of Exhibits.

The responses concerning the steps used to develop an exhibit indicate that the process is a lengthy one, utilizing a wide variety of procedures to complete the exhibit development process. Further, the responses seem to indicate that the length of time devoted to the development process would allow enough time for adopting innovative strategies, or the use of instructional development procedures if further study indicated that such methods are effective. While some would argue that such innovations would lengthen the exhibit development process, it could also be argued that the use of a systematic development process could make the process more efficient.

The survey also revealed that the steps museums use to develop exhibits lean toward what might be termed "front-end" analysis -- those activities which get the exhibit started. However, their utilization rate was considerably lower for those aspects of exhibit development which would reveal how successful their work had been, or would reveal ways to improve their exhibits.

From the comments of those respondents who do utilize instructional development, it was clearly emphasized that formative evaluation is believed to be a very important/crucial step in the exhibit development process which produces improvements in their exhibits. Trial runs of exhibits were utilized by a few institutions, but this step seems somewhat neglected by even those who indicate that they utilize instructional development. Perhaps through formative evaluation, individual segments of exhibits are put through what might be termed partial "trial runs."

It should also be noted that it may have been better if the survey had used the term "trial runs of exhibit mockups", or had used this phrase as an additional category/response choice. Completing "trial runs", or formative evaluation, of exhibit mockups would be more likely to occur than trial runs of finished exhibits. This would also be a more realistic and practical step before actually conducting a trial run of a full-scale, installed exhibit.

Consideration Given Visitors/Audience.

Survey responses concerning the ways that responding institutions consider their visitors/audience in the exhibit development process indicate that a variety of techniques are used to address this vital concern. Seventy-six percent of the respondents felt their institution's exhibits were responsive to its audience's needs or preferences. However, the overall picture is not quite so positive, considering 24% of respondents do not consider their audience's needs or preferences at all when developing exhibits.

Additionally, respondents indicated that assessing the learning style of their audience and utilizing this information in the exhibit development process was the method of operation in about half of the responding institutions. Further, an even larger number of these institutions designed their exhibits so that their visitors/audience are guided through an exhibit to encounter various sections in the order in which various "pieces" of information are to be learned.

Use of Instructional Objectives to Develop Exhibits.

A rather high percentage of institutions revealed that they were using instructional objectives to develop their exhibits. However, the majority of respondents who used instructional objectives also indicated that they were stated in general terms such as "appreciate" or "understand". Only 8% indicated their instructional objectives were stated in behavioral terms -- or what the audience "will be able to do" after visiting an exhibit. (It should be noted that this low figure for the use of behavioral objectives is in conflict with the number of institutions [34%] claiming to use instructional development to develop exhibits. This might possibly indicate that they are still in a transitional stage to the full use of the instructional development process of exhibit development.)

Those institutions that do use instructional objectives indicated that the objectives were developed during the entire exhibit development process. Their responses indicated that many of these institutions begin to develop the instructional objectives for their exhibits early in the exhibit development process. However, these figures also seem to indicate that the respondents are modifying their objectives as their exhibits take on more concrete dimensions or parameters. At first glance the 11% who develop their instructional objectives after an exhibit is finished would seem not to be making proper use of such objectives. However, there may be legitimate cases where additional instructional outcomes are identified after an exhibit is completed. It would then be appropriate to develop instructional objectives and integral or peripheral educational aspects for an exhibit to accomplish these objectives. It would take an exhaustive study of a large number of individual museums and how they actually utilize instructional objectives to be able to generalize about the true value of instructional objectives in the exhibit development process and when they would be best written.

Integral and Peripheral Educational Aspects of Exhibits.

In the category of integral/peripheral educational exhibit aspects, the designer of the survey expected to receive mainly approximate answers to the survey questions, assuming that museums would not keep statistics on funding and staff time expended on these aspects of an exhibit. The respondents indicated that these questions were difficult to answer and that they frequently answered them approximately. Their answers indicated that both integral and peripheral educational aspects of an exhibit are considered early in the exhibit development process -- though they begin to consider peripheral aspects at a later date than the integral aspects. The responses would appear to indicate that these activities respond to the ebb and flow of the exhibit development process. That is, if the exhibit begins to take some new direction, or as the direction of the exhibit becomes more clear, corresponding integral and peripheral educational aspects of the exhibit are developed. However, without further study, it is impossible to tell whether those educational aspects (both integral and peripheral) which are considered la in the exhibit development process, are just "tacked on" to the exhibit or if they serve a truly educational function of the exhibit . The respondents indicated that considerably more of their educational efforts, staff time, and budget were devoted to the integral educational aspects of their exhibits, than were devoted to the peripheral educational aspects.

Evaluation Procedures for Exhibit Development.

The evaluation procedures used by the responding institutions to investigate the effectiveness of their exhibits include a wide range of techniques, from testing and trial runs of exhibits to the use of interviews, questionnaires and outside consultants. However, three-fourths of responding institutions did not use trial runs of their exhibits before the exhibits were completed

and open to the public. Those institutions which did not use trial runs indicated a lack of time, funds, or staff to do so. Others had not considered this option, or felt it was unnecessary.

Concerning learning produced by an exhibit, half of the responding institutions do not try to assess what, if anything, their audience learns from their exhibits. This statistic stands out starkly against the high priority given education -- education through exhibits -- by these same institutions. While the learning taking place may not be "zero", these institutions would be hard pressed to demonstrate to many educators that this is not the case. However, they do utilize a number of other strategies which would help to indicate what their audience's reaction is to their exhibits.

When asked to rank what indicated a successful exhibit, the respondents indicated that the most important indication of a successful exhibit was large crowds visiting the exhibit. The response of the critics was another important indication of the success of an exhibit. Questionnaires were also frequently used as a way of learning in an exhibit was successful. Interviews were used even less frequently, and testing ranked very low as a means of learning if an exhibit had been successful.

Forty-five percent of the survey sample did not respond to this question about exhibit evaluation. One is tempted to draw the conclusion that those who did not respond believe that their exhibits are not successful or they do not employ a strategy which would let them know if their exhibits are successful.

Respondents indicated that nearly two-thirds of the institutions actively seek feedback or critical reaction from their audience -- after the exhibit is completed. Of those institutions that do seek feedback or critical response, the majority indicated that such feedback would affect their current exhibits. An even larger percentage of respondents indicated that this feedback would affect future exhibits.

Coordinating the Exhibit Development Process.

Concerning the question of coordinating the exhibit development process to insure its educational soundness, 63% of the respondents indicated that their institution had an official staff position responsible for this duty. Those respondents who had such a position further indicated these positions ranged from administrative for the museum to administrative for the exhibits division. The position was also held by curators, staff from education/public affairs, and exhibit designers. Several museums indicated they used a team approach for this function.

For those institutions which did not have such an official position, the responsibility for coordinating the work on an exhibit usually was assumed by one of four main museum staff positions: a curator, an educator, the museum director, or an exhibit designer.

Current Exhibit Development Process.

The responses to the survey point to a flurry of activity and interest in changing and improving the exhibit development process. In addition, the survey results indicate that the exhibit development process at most of the respondents' institutions has been adopted fairly recently. In the last 5 years, 45% of the responding institutions have adopted a new process to develop their exhibits. Twenty-four percent have changed their process in the last 6 to 10 years and 13% have changed in the last 11 to 15 years. Further, it should be noted that 34% of responding museums utilize instructional development for their exhibit development process. Additionally, 6% of respondents said they were using some instructional development procedures or similar procedures to develop exhibits. The comments of respondents indicated in several instances that they had recently changed to the use of instructional development, were in the process of doing so, or were looking into the possibility of such a change. Those institutions which were using instructional development indicated that 18% felt this process of developing exhibits was very successful, 13% felt it was successful, and 3% described it as "common sense".

Fifty-six percent of respondents indicated that their institutions were not using instructional development for their exhibit development process. Of those institutions that were not utilizing instructional development, 24% cited "other" reasons for not doing so. In general, their comments implied that their exhibit development process was moving in that direction (use of instructional development), or that time, limited resources or other limitations prevented the use of instructional development. It also should be noted that 21% of respondents were "unfamiliar with this (instructional development )process".

Concerning whether the exhibit development process at their institution should be restructured, 29% of respondents felt the exhibit development process was fine at their institution, while 18% felt it needed to be restructured. The majority of the respondents answered "other" concerning this question. Their comments under the "other" section indicated that they feel the exhibit development process is in a state of flux, of "constant growth and reworking" -- which would seem to indicate that many of those who chose "other" are interested in ways to improve the the exhibit development process.

Instructional Developers in the Exhibit Development Process.

Respondents indicated that at 74% of their institutions some members of their staff were familiar with the procedures of instructional development. Additionally, 45% of respondents indicated there were instructional developers on the staff of their institution. Respondents whose institutions had instructional developers on their staff also indicated that these instructional developers worked in a variety of positions in the museum; from curatorial departments, to exhibits, to education/interpretation, etc. Their duties were also quite diverse, including coordinating exhibits, acting as evaluation/audience experts, planning exhibits, planning programs, working with curators, and acting as exhibit team members.

Regarding the role of instructional developers in the exhibit development process, it should be noted that 39% of the responding institutions have an instructional developer as a member of their exhibit development team. An additional 32% of the respondents believe their institution should include an instructional developer as a member of their exhibit development team. This would seem to indicate that 71% of responding institutions believe that instructional developers should be a part of the exhibit development team. Further, when considering this 71% figure, it should be kept in mind that 21% of respondents were not familiar with the instructional development process.

While a large percentage (71%) of respondents indicated that their institutions currently had or should have an instructional developer as a member of their exhibit development team, 55% felt that instructional developers should not coordinate the work of those developing an exhibit. Those that felt an instructional developer should not coordinate the exhibit development process indicated that this was more appropriately done by either an administrator, a curator, an exhibit team, an exhibit committee, an exhibit coordinator, a project director, or by assigning this responsibility to various "owners". However, 11% of respondents indicated that at their institutions instructional developers were coordinating their exhibit development process, and another 18% felt this should be the case.

Additional Respondent Comments.

Several open-ended questions at the end of the survey allowed the respondents to discuss areas which the survey had not touched upon. One respondent wondered if exhibition design was based on educational or aesthetic considerations; what percentage of exhibits were organized in-house and what percentage were traveling exhibits; and they wanted to know if there was anyone who was charged with the responsibility of insuring a coordinated and fiscally responsible project. Another respondent felt the question of what exhibit components were specifically budgeted should have been investigated, stating that, at his institution, education/ peripherals were not specifically

budgeted. Another of his questions considered whether museums are generally happy with their exhibit development process; he answered "no" for his institution. And finally, he wanted to know the most serious problem with museums' current exhibit development processes. He indicated that at his institution it was: "too time-consuming and no one person in charge".

Another respondent wondered if museums were developing long-term plans -- such as a 5 year plan of exhibitions. Their institution was then developing a 3 to 5 year plan. They also wondered if other institutions had developed written statements of purpose for exhibits. Again, their institution was developing such a statement. One last respondent wanted to ask, "what percent of the dynamics of exhibit design and fabrication are conducted along formal lines, with guidelines; and what percent is from successful, informal routine"? Their answer indicated that they felt a museum should be "flexible enough (and professional enough) to apply the techniques, personnel and consultants as needed" to respond to the different dynamics of each exhibit.

## Recommendations

It is not the purpose of this study to examine the "correctness" of the priorities of major American museums. However, it is clear that these institutions have identified exhibits, education, and education through exhibits as their main priorities. If it is thus safe to assume that they are interested in developing educational exhibits, then the survey results would seem to indicate that there is considerably more which many museums can do toward that end -- in particular, in examining and improving the exhibit development process.

As museums develop exhibits, they could make much more extensive use of a number of strategies to make their exhibits more educationally effective. Certainly more could be done to consider the museum visitor in the selection of exhibit topics, both regarding what topics serve visitor needs and preferences and what topics visitors have the requisite knowledge to understand.

In the actual exhibit development process, such activities as needs assessment, goal setting, and writing of instructional objectives can all be utilized to greater degree. This is particularly true of instructional objectives, which should be used much more frequently and also should be more specific and stated in behavioral terms. Further, the instructional objectives should be linked to various evaluation processes to insure that the objectives are being reached.

Efforts to evaluate the effectiveness of exhibits need to be greatly increased. Formative evaluation needs to be made the norm in the exhibit development process, while much greater use of trial runs of exhibit mock-ups and trial runs of completed exhibits needs to be madeto aid in the development of effective exhibits. The use of trial runs may initially add some time to the exhibit development process, but with experience this time difference should be shortened and also compensated by the increase in the quality of the exhibits. Indeed, it seems plausible that museums would learn a "generalizable process" of using trial runs for formative evaluation of exhibits, or at least for specific types of exhibits, which would speed up this process and make it very efficient.

It is advisable that those museums which do not try to assess the educational effectiveness of their exhibits begin to do so as normal museum practice. For those museums which do assess learning, efforts need to be intensified to increase learning effectiveness through improved systematic and effective exhibit development processes -- including assessments of learner/visitor outcomes. For all museums, the successful exhibit must come to be seen as an educationally effective one, not just one attended by large crowds or praised by critics. Hopefully all three criteria can be fulfilled.

Museums need to make much greater use of feedback mechanisms and use the feedback they receive as a means of improving future exhibits. They must learn from both their successes and failures and incorporate what they have learned into the process by which they develop exhibits. Museums must become more aggressive in seeking feedback. They need to know not only whether visitors "liked" an exhibit, but also whether numerous other factors were well executed-- such as the effectiveness of lighting, use of color, shape and size of the exhibit space, use of labels or other textual materials -- that would have a significant impact on the effectiveness of an exhibit. And they need to know if anyone learned from the exhibit.

How the exhibit development process is coordinated or who performs this vital function remains open to question. The responding institutions appeared to vary greatly in this aspect of the exhibit development process, and it appears that these museums follow a variety of strategies. Though the title of the coordinator may vary, it appears important that there be one person or a small group of persons which controls the process. If exhibits are to be educational, then it would seem to follow that the person who coordinates the exhibit development process should also view this as his/her purpose -- to bring together the frequently disparate members of the team to create educationally effective exhibits.

Both the extent of the use of instructional development for exhibit development (34%), and the number of museums using instructional developers in their exhibit development process or respondents who believe their institutions should use instructional developers in their exhibit development process (71%) would seem to indicate that major American museums should begin to examine the usefulness of this technology in an organized manner. If additional museums are to adopt instructional development, it should be done in full knowledge of what this entails, and it should be done in a manner that would be most likely to insure its greatest success. This can only be done through further study of the exhibit development process and the use of instructional development.

This is no small task as very little research has been conducted on the overall exhibit development process. And while it may appear to a particular museum's staff that it is developing excellent exhibits, many museums appear to have no way to determine this or compare their exhibit development process to another one. Thus the establishment of a central organization charged with the investigation of the exhibit development process would seem appropriate -- to investigate such issues as the adoption of instructional development and its adaptation into a museum technology.

The major museums in America need to establish a systematic means to allow research into their activities. Currently there is very little centralized information which would allow researchers to investigate the exhibit development process or other issues of importance to museums. The American Association of Museum's Official Museum Directory, while serving a useful purpose, does not contain the type or quantity of information which researchers would need. The Institute of Museum Services, which provided the statistics (museums by discipline and budget size) which made this current research possible, does not have all the information needed nor do they have the time or resources to provide such information to more than just the occasional researcher.

Further, an experimental exhibit "center" could be established to investigate various ways of developing and implementing successful exhibits -- information in which major museums can share. This might be done by each of the various museum disciplines, as a consortium; and it could be done by producing experimental exhibits at a number of museums on a rotating basis, with member museums sharing in the knowledge acquired and the extra costs of such experimental exhibits. In this way instructional development or various forms of hardware, such as interactive video, can be tried out on a cost sharing basis in innovative ways. In this manner major museums can begin to share in the advances in educational research and technology without each museum individually bearing the costs and failures such change and experimentation would entail.

In addition, it would not be just the major museums which would benefit from such a move. Certainly their visitors would benefit, but also the thousands of smaller museums and historical societies might also receive great benefits. Not only are the nation's major museums role models for these smaller institutions, but they also provide them with expertise and training for a variety of museum activities. In particular, exhibit development would seem to be a primary area where the major museums might give assistance and guidance to these small institutions. Perhaps some of the major museums, which are currently utilizing the instructional development process successfully for exhibit development, should offer consultation services to other museums which would like to begin using instructional development.

Museums also need to examine their hiring practices. Those museums which require advanced degrees in a subject field -- such as art history for an art museum, or an advanced science degree for a science museum -- for museum education positions seem to be overlooking the real role of the museum educator. Museums, in their zealousness to hire educators who know their subject, overlook whether these persons can design instruction. This is not to say that museums

should not seek educators knowledgeable about the museum's discipline, but that their ability to develop effective instruction -- be it lecture, exhibit, printed matter, or outreach programs -- must be of, at least, equal importance. The competent instructional developer, with some subject expertise, can develop effective instruction in cooperation with other subject experts on the museum staff. The person with a particular subject matter background can perhaps provide the subject content, but this knowledge does not indicate that they have the skills to design "instructional systems" by adapting this content to form the basis of an exhibit or other educational program.

A task force should be created to foster the development of a museum technology. While instructional development (educational technology) might well serve as the basis for such a technology, this should be verified by additional research and field trials at major museums. A systematic and verifiable process to unify and facilitate museum functions is needed.

Indeed, an excellent start to create a museum technology was made by a number of museum professionals at the British Museum (Natural History) for use in developing exhibits for their "new" Hall of Human Biology. They realized that if they were to create educationally effective exhibits, they would need to adopt a different exhibit development process. Thus, they systematically set out to develop a museum technology for the development of exhibits. The accumulated knowledge and experience from their pioneering work is available in the book, *The Design of Educational Exhibits*, edited by R. S. Miles. It is by far the most comprehensive work on the development of exhibits, one which incorporates instructional development (educational technology) and lays the foundation for a museum technology. This work should be studied by all museum professionals, particularly those involved in the development of exhibits.

Additionally, instructional development may be the unifying technology for which museum professionals have been looking to make the museum profession more cohesive and identifiable as a profession. It would allow, in combination with other concerns addressed in university museum studies programs, a fuller communication across the various job titles in the profession.

Regarding the usefulness and value of instructional development to the museum profession, it would seem appropriate to recall the remarks of three survey respondents. One respondent, whose institution did not use instructional development, remarked that, "the survey showed naive understanding of how museums and other organizations operate." In fact, just the opposite would seem to be the case. This particular respondent does not grasp that the issues reflected in the survey are the concern of many organizations and American corporations (and 34% of major American museums) as more and more of them adopt the use of instructional development. Major corporations, which expend millions of dollars per year on education/staff development/training can not afford to do this without verifiable outcomes from these educational/training expenditures, as they can not for expenditures in other areas.

Why should museums be any different? The answer is, they should not. Just because museum exhibits offer non-directed learning is no excuse for a museum to abrogate its mandate to educate its audience; that is, provide an experience/exhibit which produces learning which is verifiable. This means, if a visitor to an exhibit actively participates in the exhibit, a certain amount of learning should take place. For this learning to be verifiable, the exhibit must have objectives for what is to be learned from the exhibit. If these objectives codify what is to be learned from an exhibit then they are instructional objectives. And if these instructional objectives are to be verified they must be stated in behavioral terms, because learning can not be measured/verified unless a change in behavior can be demonstrated.

Another respondent, from a museum that utilizes instructional development, indicated one"problem" with its use. She pointed out that when a new person joined their staff, they had to be trained in the use of the instructional development process. At first glance, this sounds like a drawback to its use, at least until many more museum professionals are trained in this discipline. However, museums utilizing instructional development should ease and facilitate the transition of current employees and new employees to the use of instructional development with orientation training, as corporations train and orientate their new employees to their system of operation. Such training for all employees would facilitate communication between museum professionals at different museums and between disciplines -- educators, curators, designers, administrators,

researchers and other staff members -- within the same museum. This is not to say that curators or exhibit designers need a "degree" in instructional development, but instead that they would need an overview/in-service training course to be knowledgeable about instructional development to begin to work effectively in such a system. Eventually, if broadly adopted, a systematic, professional process -- like instructional development -- would ease the orientation of new museum workers, or a museum worker who accepts a position at another museum.

A third survey respondent indicated that they felt the survey was comprised of "educational jargon and philosophy". While considerable educational "jargon" -- learning style, instructional objective, the word "education", integral and peripheral educational aspects, "learns," instructional development/developer -- was mentioned, much of the survey was also comprised of "jargon" which describes a systematic means of attaining objectives. The officers of many corporations would not think such terms as needs assessment, summative evaluation, formative evaluation, audience served, ranking priorities, development time, trial runs, utilization of feedback, surveys, questionnaires, or interviews to be educational jargon. They would recognize them as elements of a systematic process which guides an organization. Should museum professionals be any less familiar with the means of the systematic operation of an organization? Or, for that matter, should they be any less familiar with a variety of educational jargon since the stated mission of most museums is education? This respondent's comment points to a lack of understanding of the benefits of working in a systematic manner and the lingering denial of some museum professionals of museums' educational role and orientation.

Museums which are currently using instructional development for exhibit development, as well as those planning such an introduction, should develop comprehensive in-service training to orient current employees and future employees to the use of instructional development in a museum setting. Such a step is crucial to the successful utilization or adoption of instructional development. In some cases, it may be necessary for certain individuals to assume the role of "change agent" within their particular institution. However, this role is not without risk, frustration, or aggravation. Nor is everyone in a position to attempt this beyond their own immediate sphere of influence.

The responses of those museums which are utilizing the instructional development process indicate that many of them are utilizing a number of individual instructional development procedures. It is likely that these museums would find the adoption of this technology a fairly easy task to accomplish since they are already accustomed to various aspects of the instructional development process. Further, their use of some procedures of the instructional development process can only be enhanced by the full spectrum of the instructional development process. These individual procedures would then be more successful and more integrated into the overall operation of the museum.

The response to the survey would seem to indicate the museum profession's interest and concern about the process of developing exhibits. They appear to want to improve this process. However, the museum profession lacks any organized, systematic effort to examine exhibit development. This study has revealed a lack of research in this area and the unavailability of statistical information on American museums. Both of these situations should be remedied by a museum studies clearing house supported by government funding and a consortium of major museums. This will benefit the major museums, as well as the hundreds of smaller museums which model their practices after these leading institutions.

It is of particular interest that 39% of major American museums are currently using instructional developers in the exhibit development process, and that another 32% of the respondents believe their institution should be using instructional developers to develop exhibits. These statistics are puzzling in view of the infrequent number of times instructional development is mentioned in the museum literature. Further, the fact that 34% of museums are using instructional development to develop exhibits indicates that the role of this process in exhibit development should be examined by the museum profession and at least considered in university museum studies programs. If, as the survey respondents indicate, it is a successful way of developing exhibits, then further measures should be taken to examine and possibly adopt and adapt instructional development as a museum technology.

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